Claims:

1. A stable factor VIII/vWF-complex particularly containing high-molecular vWF multimers and being free from low-molecular vWF molecules and from proteolytic vWF degradation products.

2. A stable factor VIII/vWF-complex according to claim 1, characterized in that it exhibits a specific platelet agglutination activity of at least 50 U/mg vWF:Ag.

3. A stable factor VIII/vWF-complex according to claim 1 or 2, characterized in that it has a molar ratio of factor VIII to vWF of between 0.01 and 100.

4. A stable factor VIII/vWF-complex according to claim 3, characterized in that the molar ratio of factor VIII to vWF is between 0.05 and 1.

5. A stable factor VIII/vWF-complex according to any one of claims 1 to 4, characterized in that it contains high-molecular plasmatic vWF multimers having doublet structure.

6. A stable factor VIII/vWF-complex according to any one of claims 1 to 5, characterized in that it contains

high-molecular recombinant vWF multimers having singlet structure.

7. A stable factor VIII/vWF-complex according to any one of claims 1 to 6, characterized in that the high-molecular vWF molecules have high structural integrity.

8. A stable factor VIII/vWF-complex according to any one of claims 1 to 7, characterized in that it is free from plasma proteins, in particular plasma proteases, and free from fibrinogen and fibronectin.

9. A stable factor VIII/vWF-complex according to any one of claims 1 to 8, characterized in that it is storage-stable in solution.

10. A stable factor VIII/vWF-complex according to any one of claims 1 to 9, characterized in that it has been treated for inactivation or depletion of viruses.

11. A stable, virus-safe factor VIII/vWF-complex concentrate, particularly containing high molecular vWF multimers of high structural integrity, the vWF multimers being comprised of a singlet or doublet structure and being free from proteolytic degradation products of vWF.

12. A stable, virus-safe factor VIII/vWF-complex concentrate according to claim 11, characterized in that it has a specific platelet agglutination activity of at least 50 U/mg vWF:Ag.

13. A stable, virus-safe factor VIII/vWF-complex concentrate according to any one of claims 11 to 12, characterized in that it has a molar ratio of factor VIII to vWF of between 0.01 and 100.

14. A stable, virus-safe factor VIII/vWF-complex concentrate according to claim 13, characterized in that the molar ratio of factor VIII to vWF is between 0.05 and 1.

15. A stable, virus-safe factor VIII/vWF-complex concentrate according to any one of claims 11 to 14, characterized in that it is free from plasma proteins, in particular plasma proteases, and free from microbiological and molecular-biological pathogens.

16. A pharmaceutical composition containing a stable factor VIII/vWF-complex according to any one of claims 1 to 15.

17. A pharmaceutical composition according to claim 16, characterized in that it contains a physiologically

acceptable carrier.

18. The use of a stable factor VIII/vWF-complex according to any one of claims 1 to 15 for treating hemophilia A and/or various forms of von Willebrand syndrome.

19. A method of recovering stable factor VIII/vWF-complex, characterized in that factor VIII/vWF-complex from a protein solution is bound to a heparin affinity carrier and factor VIII/vWF-complex is recovered at a salt concentration of between ≥ 200 and ≤ 300 mM.

20. A method according to claim 19, characterized in that a plasma fraction or a cryoprecipitate containing factor VIII/vWF-complex is used as the protein solution.

21. A method according to claim 19, characterized in that a culture supernatant from transformed cells which is free from cells and contains factor VIII/vWF-complex is used as the protein solution.

22. A method according to claim 19, characterized in that an enriched protein fraction is used as the protein solution.

23. A method according to any one of claims 19 to 22, characterized in that a carrier with heparin bound thereto, preferably AF-Heparin Toyopearl® (Tosohaas), Heparin EMD-Fraktogel® or Heparin-Sepharose Fast Flow®, is used as the heparin affinity carrier.

24. A method according to any one of claims 19 to 23, characterized in that a buffer solution comprised of buffer substances, preferably Tris/HCl buffer, phosphate buffer or citrated buffer and, optionally, salt is used as the buffer system for the affinity chromatography.

25. A method according to any one of claims 19 to 24, characterized in that the affinity chromatography is effected in a pH range of from 6.0 to 8.5, preferably at a pH of 7.4.

26. A method according to any one of claims 19 to 25, characterized in that NaCl is used as salt.

27. A method according to any one of claims 19 to 26, characterized in that a factor VIII/vWF-complex is obtained with a specific activity of factor VIII:C of at least 50 U/mg protein and a specific platelet agglutination activity of at least 50 U/mg vWF.

28. A method according to any one of claims 19 to 27, characterized in that a factor VIII/vWF-complex-containing fraction, particularly containing high-molecular vWF multimers, is obtained which is free from low-molecular vWF multimers and from vWF degradation products.

29. A method of recovering stable factor VIII/vWF-complex, wherein factor VIII/vWF-complex from a contaminated protein solution is bound to an anion exchanger, characterized in that contaminating plasma proteins are selectively eluted with $CaCl_2$ at a salt concentration of ≤ 200 mM, and subsequently factor VIII/vWF-complex is obtained from the anion exchanger with a salt concentration of between ≥ 200 and ≤ 400 mM.

30. A method according to claim 29, characterized in that the contaminating proteins are plasma proteins.

31. A method according to claim 30, characterized in that the plasma proteins particularly are vitamin K-dependent factors, plasma proteases, fibronectin or fibrinogen.

32. A method according to any one of claims 29 to 31, characterized in that the $CaCl_2$ is used in the eluting

agent at a concentration of between 1 mM and 15 mM, preferably 10 mM.

33. A method according to any one of claims 29 to 32, characterized in that the elution is effected in a pH range of from 6.0 to 8.5, preferably at a pH of 7.4.

34. A method according to any one of claims 29 to 33, characterized in that NaCl is used as the salt.

35. A method according to any one of claims 29 to 34, characterized in that a factor VIII/vWF-complex particularly containing high-molecular vWF multimers is obtained which is free from low-molecular vWF molecules and from vWF degradation products.

36. A method according to any one of claims 29 to 35, characterized in that the fraction containing the recovered factor VIII/vWF-complex is subjected to a further chromatographic step, preferably to an affinity chromatography.

37. A method according to claim 36, characterized in that a heparin chromatography according to any one of claims 19 to 27 is used as the affinity chromatography.

38. A method of producing a stable factor VIII/vWF-

complex, characterized in that a purified high-molecular fraction of vWF molecules is admixed to a factor VIII or factor VIII/vWF-complex which has been purified via a chromatographic method, a factor VIII/vWF-complex having a molar ratio of factor VIII to vWF of between 0.01 and 100, preferably of between 0.05 and 1, being obtained thereby.

39. A method according to claim 38, characterized in that the purified factor VIII or factor VIII/vWF-complex is recovered from a plasma fraction.

40. A method according to claim 38, characterized in that the purified factor VIII or factor VIII/vWF-complex is recovered from a cell culture supernatant from transformed cells which is free from cells.

41. A method according to claim 38, characterized in that the purified high-molecular fraction of vWF molecules is comprised of plasmatic vWF.

42. A method according to claim 38, characterized in that the purified high-molecular fraction of vWF molecules is comprised of recombinant vWF.

43. A method according to any one of claims 38 to 42, characterized in that a high-molecular fraction of vWF

molecules having a specific platelet agglutination activity of at least 50 U/mg vWF:Ag is recovered.

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